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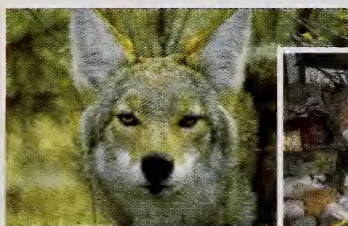


United States Department of Agriculture

Animal and Plant Health Inspection Service

Program Aid No. 1730

Wildlife Services: Preventing Rabies



Background

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abies is one of the oldest known viral diseases, yet today it remains a significant wildlife-management and public-health challenge. Rabies affects the central nervous system of unvaccinated animals that are exposed to the virus and is invariably fatal. Over the past 30 years, rabies management has grown in complexity in the United States, as wild animals, including skunks, raccoons, foxes, coyotes, and bats, have replaced the domestic dog as the primary reservoir for the disease. The Centers for Disease Control and Prevention reports that wildlife currently account for greater than 90 percent of reported cases of rabies in the United States.

The cost of living with rabies in America is high and growing, exceeding \$300 million per year. Although rabies vaccinations have been available for domestic animals for many years, until recently no such preventive measure existed to control rabies in wildlife.

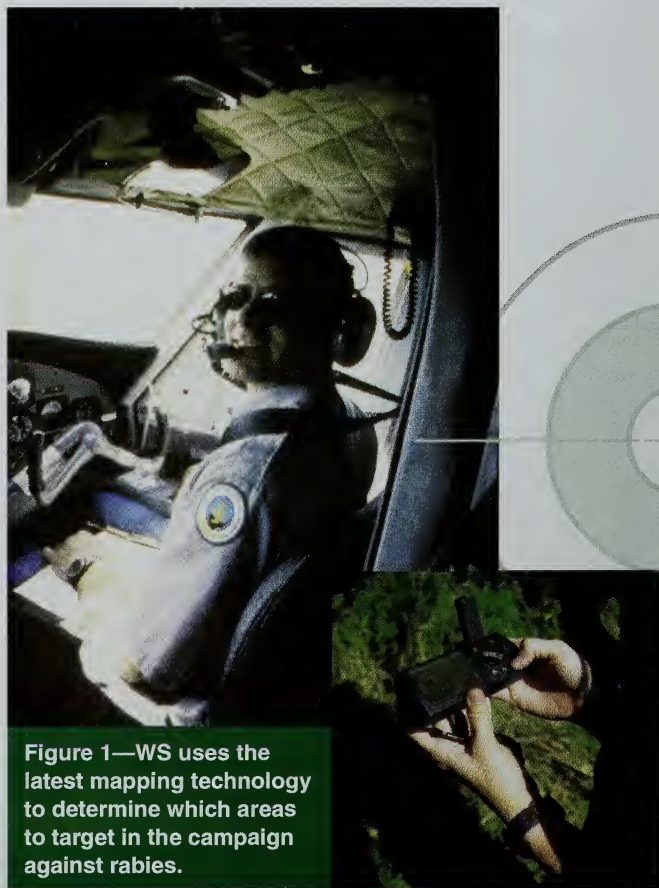


Figure 1—WS uses the latest mapping technology to determine which areas to target in the campaign against rabies.

Wildlife Services' Mission

The Wildlife Services (WS) program—part of the U.S. Department of Agriculture's (USDA) Animal and Plant Health Inspection Service (APHIS)—is charged with providing Federal leadership to alleviate or minimize wildlife damage to agricultural, property, and natural resources and protect humans from health and safety threats from wildlife. Providing assistance in wildlife disease management is an integral part of the WS mission.

Partnerships: Effective Cooperation and Collaboration

WS has a long history of involvement with State and local as well as other Federal agencies in the fight to directly control the spread of rabies in the United States. WS serves in an advisory capacity on several State rabies task forces that focus on planning for rabies management. These partnerships form the basis for future coordinated rabies control programs.

Since 1992, WS has partnered with the Vermont Departments of Health, Agriculture, and Fish and Wildlife to manage a toll-free telephone hotline to help Vermont residents cope with raccoon, fox, and bat rabies, which continues to threaten humans and animals there. Over



Figure 2—Biologists collect blood and other biological samples to evaluate the effectiveness of the ORV program before releasing the animals back into the wild at the site of capture.

the hotline, WS personnel provide practical advice to help citizens avoid rabies threats as a first line of defense in the fight against the disease.

In 1995, WS cooperated with the Texas Department of Health and other agencies and organizations to develop and implement an oral rabies vaccination program aimed at preventing the northward spread of a strain of canine rabies that was prevalent in coyotes in Texas.

Since 1998, WS has cooperated in programs designed to distribute an oral rabies vaccine (ORV) that has helped to prevent the spread of rabies in wild raccoon populations in Vermont, Ohio, New York, West Virginia, and Pennsylvania. In January 2001, WS cooperated with State, local, and other Federal agencies to contain an outbreak of skunk rabies in the Flagstaff, AZ, area. This outbreak was unprecedented in that bat rabies had become established in skunks, and the skunk epidemic—if left unchecked—could have resulted in a new strain of terrestrial rabies.

WS contributions to ORV include providing cooperative Federal funding that enhances States' ability to develop and implement more effective, far-reaching, and comprehensive rabies education, control, and prevention programs. WS also ensures that project evaluations are vigorous and science based for sound project implementation.

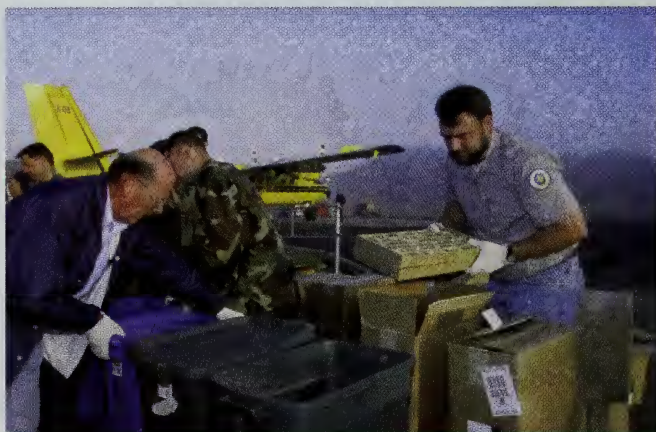


Figure 3—WS personnel and cooperators prepare for aerial ORV bait distribution.

ORV Efforts in the East

Once confined to Florida, southern Georgia, and southeastern Alabama, raccoon rabies has become established from Alabama to Maine and as far west as eastern Ohio. In an effort to create a rabies-free barrier along the Appalachian ridge, WS has provided funding to purchase ORV baits and partnered with affected States to coordinate aerial and ground distribution of ORV. The bait in which the vaccine is delivered is developed and manufactured by Merial, Inc., of Athens, GA. It consists of a fishmeal polymer cube (1 1/4 inches \times 3/4 inch) that is hollow. A sachet, or plastic packet, containing the Merial Raboral V-RG[®] rabies vaccine is inserted into the hollow area of the bait and then sealed with wax.

The fishmeal is attractive to raccoons and strong enough to withstand distribution from airplanes flying at an altitude of about 500 feet. When a raccoon finds the bait and bites into it, the sachet ruptures, allowing the vaccine to flow into the raccoon's mouth. Raccoons become vaccinated against rabies by this oral route.



Figure 4—Planes are the most effective means for distributing the baits over large-scale ORV zones.



Figure 5—End and side view of the Merial Raboral V-RG[®] rabies vaccine bait.

Determining the Effectiveness of the Program

After the baits have been distributed and the raccoons have had a chance to ingest them, WS works with its cooperators to measure the success of every ORV campaign. Live traps are set throughout ORV zones and marshmallows, vanilla, cat food, and other attractants are used to lure raccoons into the traps.

Live traps are checked regularly and affixed with labels to inform the public about WS' trap-and-release program. All captured raccoons are temporarily anesthetized so that blood samples can be taken and their first premolar, a small tooth, can be removed. The raccoons do not experience pain during this procedure, and they are not released back into the wild until the effects of the anesthetic have worn off. The animals are then monitored until they have fully recovered.

All samples are sent to cooperating Federal and State laboratories, where the antibody level for each raccoon sample is determined. Tooth samples are sent to laboratories for sectioning to determine if they contain a biomarker that indicates whether one or more baits were ingested.

In Ohio, where the cooperative ORV program has been in place since 1997, approximately 34 percent of all raccoons tested have protective antibodies to rabies. This vaccination rate appears to be sufficient to prevent the spread of the disease across the rabies-free barrier. Ohio has seen a dramatic drop in the number of cases of raccoon rabies since the program began. In 1997, Ohio reported 59 rabies-positive raccoons, but in 2000 none were reported. In 2001, Ohio documented only one case of raccoon rabies along its eastern border with Pennsylvania.



Figure 6—Raccoons are lured to live traps using marshmallows, oil of anise, vanilla, and other attractants.

The Future

WS is committed to the principle that an educated public is better able to understand the risks imposed by rabies, and thereby better equipped to participate in and benefit from rabies prevention efforts. Because rabies is a fatal disease in wildlife, domestic animals, and untreated humans, WS' goal is to prevent exposure to it. Education is the first step in achieving that goal. Expertise from a variety of sources, including agencies that manage public health, wildlife, and agriculture, is integral to the overall team-centered approach to rabies prevention.

WS has identified five strategic areas where it can assist cooperators in the ORV program. These include cooperation through funding and program expertise, coordination of interstate rabies control efforts, education, wildlife population monitoring, and research.

The development of effective ORV programs promises to change rabies management in the future. Preliminary successes of ORV campaigns in Europe and Canada, along with recent field trials in the United States, have advanced our understanding of rabies management methods. The cost-effectiveness of the ORV to prevent and contain specific strains of rabies continues to be a central issue that will require careful evaluation.



Figure 7—Labels are affixed to live traps to inform the public about WS' trap-and-release program.

Additional Information



Information regarding rabies as well as other WS issues is available at any State APHIS WS office. To locate this office in your State, look in the blue pages of your phone book under USDA. Factsheets entitled “Living With Wildlife” and “The Rabies Management Challenge” are also available online at <http://www.aphis.usda.gov> to provide more information about rabies and tips on dealing with backyard wildlife.

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